

SPECIFICATION AMENDMENTS

AT PAGE 1 OF THE ORIGINAL SPECIFICATION, AMEND THE PENULTIMATE PARAGRAPH TO READ:

Other prior ~~art~~ art crusher devices provided somewhat of an abutment-like extension as at the lower end or ends of the jaw or jaws in an attempt to prevent too large of broken pieces, of the work, to fall through the space generally between ~~th~~ the jaws.

AT PAGES 2,3 AND 4 OF THE ORIGINAL SPECIFICATION, AMEND THE PARAGRAPH IMMEDIATELY FOLLOWING THE SUBHEADING "Summary of the Invention" TO READ:

According to the invention, a crushing - breaking apparatus comprises a frame having side plates facing each other and spaced apart a predetermined distance, a first cutlery device provided in said frame, said first cutlery device comprising a plurality of first projection-shaped cutleries, a second cutlery device provided in said frame, said second cutlery device comprising a plurality of second projection-shaped cutleries, said plurality of second projection-shaped cutleries being disposed on said second cutlery device at locations offset relative to said first projection-shaped cutleries of said cutlery device, first pivot means for pivotally supporting said first cutlery device, second pivot means for pivotally supporting said second cutlery device, said first cutlery device comprising a relatively upper end and a relatively lower end, said second cutlery device comprising a relatively upper end and a relatively lower end, wherein said first pivot means is situated at least near said relatively upper end of said first cutlery device, wherein said second pivot means is situated at least near said relatively lower end of said second cutlery device, first abutment means effective for at times engaging said first cutlery device to thereby stop motion of said first cutlery device about said first pivot means, second abutment means

effective for at times engaging said second cutlery device to thereby stop motion of said second cutlery device about said second pivot means, first motor means operatively connected to said first cutlery device at an area thereof which is at least closer to said lower end of said first cutlery device than to said upper end of said first ~~cutlery~~ cutlery device, and second motor means operatively connected to said second cutlery device at an area thereof which is at least closer to said upper end of said second cutlery device than to said lower end of said second cutlery device, said first motor means being effective to pivotally move said first cutlery device about said first pivot means as to thereby move said relatively lower end of said first cutlery device toward said second cutlery device, said second motor means being effective to pivotally move said second cutlery device about said second pivot means and generally toward said first cutlery device, wherein said first cutlery device continues to so move toward said second cutlery device and said second cutlery continues to so move toward said first cutlery device as to place said relatively lower end of said first cutlery device juxtaposed to said relatively lower end of said second cutlery device and to place said relatively upper ends of said first and second cutlery devices spaced from each other and defining an inlet for placing work to be crushed between said first cutlery device and said second cutlery device.

ON PAGE 4 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH DESCRIBING FIGURE 2 TO READ:

Figure 2 is an end elevational view of the crusher of Figure 1 taken on the plane of line 2---2 of Figure 1 and looking in the direction of the arrows;

ON PAGE 6 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH DESCRIBING FIGURE 17 TO READ:

Figure 17 is a view taken ~~generally~~ generally on the plane of line 17--17 of Figure 16 and looking in the direction of the arrows;

ON PAGE 6 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH DESCRIBING FIGURE 22 TO READ:

Figure 22 generally represents the right side view of the assembly of Figure 1 and with many of the elements and details comprising ~~such~~ such assembly not being shown for clarity of disclosure;

ON PAGE 6 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH DESCRIBING FIGURE 23 TO READ:

Figure 23, a view similar to Figure 22, illustrates the general positions of the back assemblies at what may be considered a starting position for the structure of ~~figure~~ Figure 1;

ON PAGE 11 OF THE ORIGINAL SPECIFICATION AMEND THE LAST PARAGRAPH THEREON TO READ:

As generally depicted in Figures 1, 6, 7, 14, 15, 16 and 17, in the preferred embodiment the crushing and/or breaking apparatus 10 is comprised of a main cylinder and assembly 180 and a back cylinder and assembly 182. As possibly best depicted in Figures 7, 8, 9, 12, 13, 14, and 15, the back cylinder and assembly ~~182~~ 182 is preferably comprised of back cylinder mounting plates or members 184 and 186.

ON PAGE 13 OF THE ORIGINAL SPECIFICATION AMEND THE FIRST FULL PARAGRAPH THEREON TO READ:

As best depicted possibly in Figures 6, 7, 14 and 15, the member 212 is situated generally ~~betwee~~ between plates or members 184 and 186 in a manner whereby a main body portion 212 in effect establishes the distance between plates 184 and 186 while ends 214 and 216 of body means 212 extend respectively through slots 198 and 210 of plates 184 and 186.

ON PAGE 13 OF THE ORIGINAL SPECIFICATION AMEND THE
SECOND FULL PARAGRAPH THEREON TO READ:

As shown in Figures 2, 6, 7, 12, 13, 14 and 15, in the assembled condition the back cylinder stop plates or members 230 and 232 are respectively carried by and secured, as by welding, to both cylinder members 106 and 108. That is, cylindrical surfaces 244 and 246 are operatively welded to cylinders 106 and 108 in a generally outboard location while cylindrical surfaces 236 and 238 are operatively welded to cylinders 106 and 108 in a generally outboard location opposite to member 234.

ON PAGE 14 OF THE ORIGINAL SPECIFICATION AMEND
LAST FULL PARAGRAPH THEREON TO READ:

As shown in, for example, Figures 1, 2, 6, 7, 18 and 19, in the preferred embodiment, bearing means 280 and 282 are operatively secured to the back blade 250. Preferably, mounting surfaces 284 and 286 are carried by the back blade 250 (Figures 6, 7, 14, 15, 18 and 19) for respectively mounting thereon bearing means or assemblies 280 and 282 securing such to back blade 250. That is, the base 288 (Figure 6) of bearing assembly 280 is suitably secured to mounting 284. Similarly, the ~~base~~ base 290 of bearing assembly 282 is suitably secured to mounting surface 286. Bearing cap 292 is operatively secured to bearing base 290 while a bearing 294 is operatively secured to bearing base 288. As should be apparent, especially in view of Figures 1, 6 and 7, bearing assemblies 280 and 282 enable the back plate assembly 252 to be pivotally moved about the axis 402 of cylinder or roller 104.

ON PAGE 15 OF THE ORIGINAL SPECIFICATION AMEND THE SECOND
FULL PARAGRAPH THEREON TO READ:

As was previously stated, the abutment members or plates

230 and 232 are each suitably fixedly secured to the cylinders 106 and 108. The back plate 250 is pivotally swingable about the axis 402. The movement of the back plate assembly 252 in the clockwise direction, as viewed in Figures 14 and 18 is limited in that maximum clockwise movement is determined by abutments 230 and 232 engaging the back plate 250. That is, further motion is prevented when surface 240 of abutment 230 and ~~surfaces~~ surface 248 of abutment 232 operatively engage the juxtaposed surface 291 of member 250. When such abutting engagement is achieved, end surfaces 226 of member 184 and end surfaces 228 of member 186 are also in abutting engagement with back plates 250.

ON PAGES 16 AND 17 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH BEGINNING NEAR THE BOTTOM OF PAGE 16 AND CONTINUING OVER ONTO PAGE 17 AND ENDING NEAR THE TOP THEREOF TO READ:

Figures 20 and 21 illustrate in greater detail, the main plate or blade assembly 350 as preferably comprising the main blade body 346 which, in turn, carries a main face plate like member or wear plate 352. The main body 346 and the wear plate member 352 are suitably secured to each other as by welding or by the use of a plurality of fastener means as, for ~~exampl~~ example, depicted at 256 of Figures 18 and 19.

ON PAGE 17 OF THE ORIGINAL SPECIFICATION AMEND THE FIRST FULL PARAGRAPH THEREON TO READ:

A plurality of tooth-like members 354 are preferably removably secured to the main blade member 346. Each of the teeth 354 is depicted as comprising a tooth body 356 which, in the preferred embodiment, is received by a matching ~~passage358~~ passage 358 formed in wear plate 352. Such teeth 354 are secured in the assembly 350 as by cooperating bolts 360, washers 362 and nuts 364.

ON PAGES 17 AND 18 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH BEGINNING NEAR THE BOTTOM OF PAGE 17 AND CONTINUING OVER INTO PAGE 18 TO READ:

The opposite end of blade member 346 has a deflector or shielding means 374 which may be secured to blade member 346 as by welding depicted at 376 and 378. The deflector means 374 is shown as comprising a main body 380 to which at opposite ends thereof are secured carrying or supporting members 382 and 384 extending generally away and, in turn, supporting yet another deflector body or shield 386.

~~A plurality~~ A plurality of threaded fasteners are generally designated at 390 as serving to secure a wear plate 388 to the body 380.

ON PAGE 18 OF THE ORIGINAL SPECIFICATION AMEND THE FIRST FULL PARAGRAPH THEREON TO READ:

As further shown in Figures 20 and 21, the underside (as shown in Figures 20 and 21) 344 of ~~Blade~~ blade member 346 carries an extension portion or arm 392 with an aperture or passage 394 formed therethrough.

ON PAGE 21 OF THE ORIGINAL SPECIFICATION AMEND THE FIRST FULL PARAGRAPH THEREON TO READ:

It should be apparent that the cutlery projections or bodies 354 of main plate assembly 350 are positioned as to be offset relative to the bodies or cutlery projections 266 of back blade assembly 252. That is, if assemblies 252 and 350 were to be moved relatively toward ~~each~~ each other, such movement would not be stopped by cutlery projections 266 engaging cutlery projections or bodies 354. The cutlery projections 266 and remainder of the back blade assembly 252 may be considered a first cutlery device while the cutlery projections 354 and remainder of the front or main blade assembly 350 may be considered a second cutlery device.

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Group Art: 3725

ON PAGES 23 AND 24 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH BEGINNING AT THE LOWER PORTION OF PAGE 23 AND CONTINUING OVER ONTO PAGE 24 TO READ:

In comparing Figures 25 and 26, it will be seen that ~~that~~ the main blade assembly 350 has been further pivotally rotated, by the piston rod 333 of piston assembly 337, some amount counter-clockwise about axis 400. Such rotation of the main blade assembly (second cutlery device) 350, in turn, causes the back blade assembly (first cutlery device) 252 to move some amount clockwise about the axis 402. The clockwise movement of blade assembly 252 is brought about by piston means 337 urging the main blade assembly 350 toward back blade assembly 252, This occurs either by actual contact between the back blade and main blade assemblies 252 and 350, or by the main blade assembly 350 moving against the material (to be crushed or broken) between blade assemblies 252 and 350 and through such material causing the back blade assembly 252 to pivot about axis 402 and move, for example, to the depicted position.

ON PAGE 25 OF THE ORIGINAL SPECIFICATION AMEND THE SECOND FULL PARAGRAPH THEREON TO READ:

In the preferred embodiment of the invention, the movement of the back blade assembly 252 and the movement of the front or main blade assembly 350 is hydraulically brought about. Accordingly, in the preferred embodiment, ~~hydraulic~~ hydraulic cylinder assembly 220 serves to move back blade assembly 252 pivotally about axis 402 while hydraulic cylinder assembly 337 serves to move the main or front blade assembly 350.

ON PAGE 27 OF THE ORIGINAL SPECIFICATION AMEND THE FIRST FULL PARAGRAPH THEREON TO READ:

In those situations wherein ECU 588 causes valving means

610 to move in an opposite direction, conduit 608 is placed in communication with conduit 602 causing piston 596 to force hydraulic fluid out through passage means 594 and via means 598 through pressure sensor 610, through valving means 600, and to sump 618 via ~~conduit~~ conduit means 616.

ON PAGE 27 OF THE ORIGINAL SPECIFICATION AMEND THE SECOND FULL PARAGRAPH THEREON TO READ:

A pump P_2 driven by motor M_2 receives hydraulic fluid via conduit means 604 from a reservoir 606 ~~and under~~ and under pressure, such hydraulic fluid is pumped via conduit means 608 to valving means 600.

ON PAGE 28 OF THE ORIGINAL SPECIFICATION AMEND THE FIRST FULL PARAGRAPH THEREON TO READ:

Such a pressure signal may then be employed as an indication that the crushing function is requiring hydraulic pressures above the magnitude that is desired. Such, then via transmission 612 conveys the signal to ECU 588 ~~which~~ which, in turn, causes at least the main blade 350 to move some distance in the opening direction permitting the work to be crushed to re-arrange itself somewhat lower between blades 252 and 350 thereby enabling such work to be crushed within normal operating hydraulic pressure.

ON PAGE 28 OF THE ORIGINAL SPECIFICATION AMEND THE SECOND FULL PARAGRAPH THEREON TO READ:

Figure 28 also depicts what may be referred to as proximity switches 622, 624, 626, 628 and 630 positioned at selected locations as to thereby have an actuator 632, operatively carried as by the piston rod 333, be effective to operatively engage and actuate such proximate switch means to thereby send signals, respectively as along conductor means 634, 636, 638, 640 and 642 to the ECU 588. In the preferred embodiment, the actuator 632 effectively causes the proximity switch to continue being closed, for example,

once the actuator 632 closes the switch and the actuator does not ~~subsequently~~ subsequently return past the proximity switch.

ON PAGES 28 AND 29 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH BEGINNING AT THE LOWER PORTION OF PAGE 28 AND CONTINUING OVER ONTO PAGE 29 TO READ:

That is, for example, if piston 596 and rod 333 are moving to the left and actuator 632 operatively engages and closes switch means 624, it is preferred that such proximate switch ~~switch~~ means, as 624, remain in the actuated condition even though the piston rod 333 and actuator continue in movement towards and beyond switch means 630. In such an arrangement, the respective switch means 630, 628, 626 and 624 would sequentially become only as the actuator means reverses in its travel and passes the juxtaposed switch means in the actuator's travel toward assembly 337. The practice of the invention may comprise more or less of such proximate switch means.

ON PAGE 29 OF THE ORIGINAL SPECIFICATION AMEND THE FIRST FULL PARAGRAPH THEREON TO READ:

Referring now primarily to Figure 29, the chart ~~provide~~ provided therein may be considered a flow chart of various stages which the apparatus of the invention may experience.

ON PAGE 29 OF THE ORIGINAL SPECIFICATION AMEND THE THIRD FULL PARAGRAPH THEREON TO READ:

In Figure 29 a home, H, position or condition is designated at 700 and such may be considered as being ~~deposited~~ depicted in Figure 27.

ON PAGE 31 OF THE ORIGINAL SPECIFICATION AMEND THE SECOND FULL PARAGRAPH THEREON TO READ:

In the preferred embodiment of the invention, the piston 596 is moved against the resistance offered by the work to

be crushed. The amount of force produced by such piston is preferably set at a maximum selected magnitude considered sufficient for all normal operations. However, there will be instances wherein the application of such maximum selected magnitude is not sufficient to ~~achieve~~ achieve the desired crushing function. This may be considered and referred to as an overpressure condition in that without other ~~cation~~ action, in order to achieve the desired crushing, an hydraulic overpressure would have to be supplied to piston means 596 which, cannot be done because a selected maximum ~~press-he~~ magnitude of pressure has been established.

ON PAGES 32 AND 33 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH BEGINNING AT MID-PAGE OF PAGE 32 AND CONTINUING ONTO PAGE 33 TO READ:

At transition 714 the apparatus 10 is approaching state 716. However, if at that time an overpressure condition is experienced, the apparatus 10, instead of achieving state 716, continues along ~~transition~~ transition 731 to state or condition 732 which comprises a first counting means 770 effective to count the times that apparatus 10 has experienced the state or condition 732. Apparatus 10 then transitions as at 734 to state or condition 736 and, as hereinbefore explained and described, the blade assemblies are relatively opened enabling pieces of the load to reposition and move further downwardly to enhance the crushing ability. The crushing undergoes its transition via 738 to state or condition 716. If there is still sensed an overpressure condition, apparatus 10 again transitions via 731, 732, 734, 736 and 738 and, of course, counting means 770 records such. However, if no overpressure condition exists at state 716 then apparatus 10 transitions via 718 to state 720.

ON PAGE 33 OF THE ORIGINAL SPECIFICATION AMEND THE SECOND FULL PARAGRAPH THEREON TO READ:

At transition 718 apparatus 10 is approaching state or condition 720. However, if at that time an overpressure condition is experienced, the apparatus 10, instead of achieving state 720, continues along transition 740 to state or ~~condition~~ condition 742 which comprises a second counting means 772 effective to count the times that apparatus 10 has experienced the state or condition 742. Apparatus 10 undergoes the opening of the blade assemblies (as previously described with regard to 732, 734 and 736) to drop and reposition portions comprising the load to be crushed and then transitions via 744 to state or condition 716. If then there is no overpressure condition via 718, the apparatus 10 attains a condition or state 720 and continues via transition 722 to condition or state 724.

ON PAGES 33 AND 34 OF THE ORIGINAL SPECIFICATION AMEND THE PARAGRAPH BEGINNING AS THE LAST LINE ON PAGE 33 AND CONTINUING ONTO PAGE 34 TO READ:

Having achieved the transition to state or condition 720, the apparatus 10 continues its ~~transition through~~ transition through 722 to approaching state or condition 724. If at that time an overpressure condition is experienced the apparatus 10, instead of achieving state 724, continues along continues along transition 746 to state or condition 748 which comprises a third counting means 774 effective to count the times that apparatus 10 has experienced the state or condition 748. Apparatus 10 then transitions state 748, actuates counting means 774 and transitions via 750 to the state or condition 720. As apparatus 10 transitions via 722 and 724, if an ~~over-pressure~~ overpressure condition exists apparatus 10 transitions via 752 to state 742 and, as hereinbefore explained and described, the blade assemblies are opened enabling pieces or members of the load to reposition and move further downwardly to enhance the crushing ability. The crushing undergoes its transitions

as via 752 and 742.

ON PAGE 34 OF THE ORIGINAL SPECIFICATION AMEND THE
FIRST FULL PARAGRAPH THEREON TO READ:

When apparatus 10 finally transitions to state 724, it continues via 726 to state or condition 728 at which time the back blade assembly 252 and main blade assembly 350 are opened ~~enabling~~ enabling the crushed material to be discharged as generally depicted in Figure 27.

ON PAGE 34 OF THE ORIGINAL SPECIFICATION AMEND THE
SECOND FULL PARAGRAPH THEREON TO READ:

The counting means 770, 772 and 774 may be set to any desired values and such counting means may also keep track of the number of times that a particular loaded apparatus 10 passes through states: 748 and 742; 742 and 732; and 748, 742 and 732.